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- 1. A method for low-density parity-check (LDPC) encoding of data, the method comprising: defining a first MxN parity check matrix;
- generating, based on the first parity check matrix, a second parity check matrix having an MxM triangular sub-matrix; and,

mapping the data into an LDPC code word based on the second parity check matrix.

- 2. A method as claimed in claim 1, further comprising eliminating 4-cycles from the second matrix.
  - 3. A method as claimed in claim 1, wherein the defining of the parity check matrix comprises cyclically shifting of rows of the first matrix.
  - 4. A method as claimed in claim 1, comprising setting entries along the main diagonal of the MXM triangular sub-matrix to the same/value.
  - 5. Apparatus for low-density parity-check (LDPC) encoding of data, the apparatus comprising:

matrix definition logic for defining a first MxN parity check; a triangular matrix generator for generating a second parity check matrix based on the first parity check matrix; the second parity check matrix having an MxM triangular sub-matrix; and, an encoder for mapping the data into an LDPC code word based on the second parity check matrix.

- 25 6. Apparatus as claimed in claim 5, wherein the triangular matrix generator, in use, eliminates 4-cycles from the second matrix.
  - 7. Apparatus as claimed in claim 5, wherein the matrix definition logic, in use, cyclically shifts rows of the first matrix.

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- Apparatus as claimed in claim 5, wherein the matrix definition logic, in use sets entries 8. along the main diagonal of the MXM sub-matrix to the same value.
- A computer program product for low-density parity-check (LDPC) encoding of data, the 9. 5 computer program product comprising a machine readable storage medium storing computer program code which, when loaded in a programmable data processor, configures the processor to perform the steps of:

defining a first MxN parity check matrix;

generating, based on the first parity check matrix, a second parity check matrix having an MxM triangular sub-matrix; and,

mapping the data into an LDPC code word based on the second parity check matrix.

- 10. A computer program product as claimed in claim 9, further comprising eliminating 4-cycles from the second matrix.
- A computer program product as/claimed in claim 9, wherein the defining of the parity 11. check matrix comprises cyclically shifting of rows of the first matrix.
- 12. A computer program product as claimed in claim 9, comprising setting entries along the main diagonal of the MXM triangular sub-matrix to the same value.
- A data transmitter for transmitting data received from an information source via a 13. communications channel, the data being encoded by the transmitter into a low-density parity-check (LDPC) codé word, the transmitter comprising: matrix definition logic for defining a first MxN parity check matrix; a triangular matrix generator for generating a second parity check 25 matrix based on the first parity check matrix; the second parity check matrix having an MxM triangular sub-matrix; and, an encoder for mapping the data into an LDPC code word based on the second parity check matrix.

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14. A data storage system for storing data received from an information source in a data storage channel, the data being encoded by the system into a low-density parity-check (LDPC) code word, the system comprising matrix definition logic for defining a first MxN parity check matrix; a triangular matrix generator for generating a second parity check matrix based on the first parity check matrix; the second parity check matrix having an MxM triangular sub-matrix; and, an encoder for mapping the data into an LDPC code word based on the second parity check matrix.

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